VOL. X NO. 6

Entomological News

Feniseca tarquinius
Chrysalis (enlarged)

JUNE, 1899.

EDITOR:
HENRY SKINNER, M. D.
PHILIP P. CALVERT, Ph. D., Associate Editor.

Advisory Committee:

EZRA T. CRESSON. CHARLES A. BLAKE. CHARLES LIEBECK.
PHILIP LAURENT. WILLIAM J. FOX. CHARLES W. JOHNSON.

PHILADELPHIA:
ENTOMOLOGICAL ROOMS OF
THE ACADEMY OF NATURAL SCIENCES,
LOGAN SQUARE

1899

Entered at the Philadelphia Post Office as Second Class Matter.

Entomological News

published monthly, **excepting July and August,** in charge of the Entomological Section of the Academy of Natural Sciences, Philadelphia, and the American Entomological Society.

Annual Subscription, $1.00, in advance,

Outside of the United States and Canada, $1.20.

Advertising Rates: 30 cents per square inch, single insertion; a liberal discount on longer insertions. No advertisement taken for less than 60 cents. Cash in advance.

☞All remittances should be addressed to ENTOMOLOGICAL NEWS, Academy of Natural Sciences, 19th and Race Streets, Philadelphia, Pa.

THE undersigned offers for the next season, at low prices, cash payment, fresh **Coleopters** and **Lepidopters** from the Schleswich Mountains. Further information by direct correspondence.

OSKAR HENSEL, Gottesberg, Schlesien, Germany.

A. SMITH & SONS, 269 PEARL STREET, NEW YORK.

MANUFACTURERS AND IMPORTERS OF

GOODS FOR ENTOMOLOGISTS,

Klaeger and Carlsbad Insect Pins, Setting Boards, Folding Nets, Locality and Special Labels, Forceps, Sheet Cork, Etc. Other articles are being added, **Send for List.**

VIENNA 1893. Medal I. Class. **BUTTERFLY NETS.** GENEVA 1896. Honorable Diploma

The **G.K. Net** is made of the best material.
The **G.K. Net** can be mounted or dismounted in a moment.
The **G.K. Net** suits any stick, and may be carried in any pocket.
The **G.K. Net** is every collector's delight.

THE G. K. NET
READY
FOR USE.

Diameter 14 inches. The most elegant net.
Circumference 44 inches. The most practical net
Depth of the net 29 inches. The most durable net.

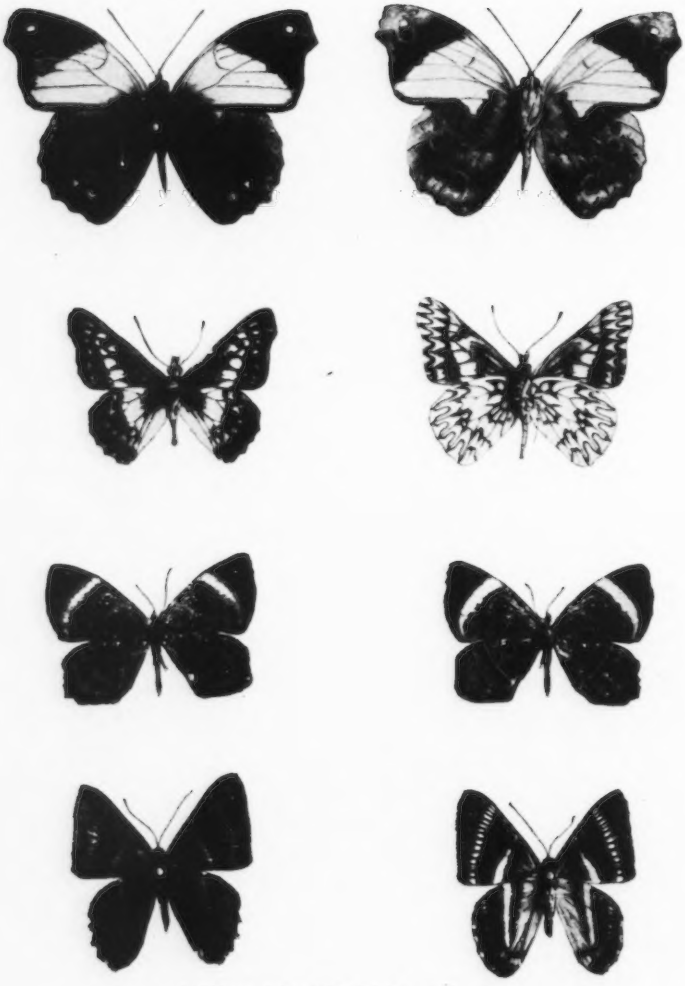
THE G. K. NET
WHEN NOT
IN USE.

Dimensions 1 by 4 by 11 inches.
The Lightest, the Handiest, the Cheapest Net.
One Quality, one Size, one Price only.

Send postal order $1.50 and you will get the **G.K. Net** free of all charge from

Graf-Krüsi, Gais, Switzerland.

WHEN WRITING PLEASE MENTION "ENTOMOLOGICAL NEWS."



NEW LEPIDOPTERA (Mengel)

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. X. JUNE, 1899. No. 6.

CONTENTS:

Fowler—California Bees of the Genus Nomada.....157
Hopping—Some Notes on Coleoptera Found on Species of Ceanothus 162
Mengel—Four New Species of Butterflies from South America.....166
Hancock—The Castle-Building Spider (Lycosa Domifex).....168
Banks—New Myrmeleonidæ.....170
Ball—Some New Species of Athysanus172
Ehrmann—Notes on Eastern N. A. Cychrus.....174
Editorial.....176
Notes and News.....178
Entomological Literature.....182
Doings of Societies.....189
Obituary.....190
Exchanges.....I, II

CALIFORNIA BEES OF THE GENUS NOMADA.

BY CARROLL FOWLER, Berkeley, Cal.

Among the most characteristic of our early spring bees are those of the genus *Nomada*, which are to be found rather of the University of California. The species exhibit a great deal of variation in color and also in the wing venation. The latter character cannot be used at all in classifying because in abundantly upon our yellow wild flowers. This article is based upon a study of the species *Nomada* in my collection and that the single species *bisignata*, of which we have a large series all the extremes of variation in the venation are to be found. The color pattern, although variable, seems to be the most reliable character. The following synopsis is an attempt at the natural classification of the species known to me, with the probable position of the other California species indicated in foot notes.

Bright yellow markings on black ground, with very little brown.

Second abdominal segment broadly yellow; two large yellow spots on metathorax.* . . . . VINNULA.

Yellow on second segment narrowed or interrupted; metathoracic spots feeble, usually wanting.

Legs largely yellow; fifth abdominal segment almost entirely yellow. Yellow band on second abdominal segment not interrupted.

Second joint of the flagellum slightly shorter than the third. . . . . CIVILIS.

Second joint of the flagellum about one-third the length of the third. . . . . RIVALIS.

Legs black with brown markings; broad basal portion of the fifth abdominal segment black.

Yellow bands of the abdomen entire. . . FRAGILIS.

Yellow bands on segments 2–4 broadly interrupted. INTERRUPTA.

Reddish brown and black, sometimes with pale yellow lateral markings on the abdomen.

Second abdominal segment with large whitish, lateral markings connected by a narrow, medially interrupted line near the posterior edge. . . CROTCHII.

Lateral markings, when present, yellowish and not extending medially.

On the sides of the abdominal-segments a large basal black spot crowding the yellow into a narrow oblique line. . . . . OBLIQUA

Black spots small or wanting.

Broad base of segments 1–4 black. . . OBSCURA.

Little or no black on base of segments 1–4.

Fifth abdominal segment with two yellow spots or a band.†

Scutellum sub-bilobate, with yellow spots. VINCTA.

---

* *Citrina*, *edwardsii* and *suavis*, which are unknown to me, also appear to go here *Suavis* differs from *vinnula* in that the fifth abdominal segment is entirely yellow; *edwardsii* from both of these, in having yellow markings on the disc of the thorax; and *citrina* from all these, in that the second joint of the flagellum is shorter than the third.

† *Opposita* may be distinguished by its pale ferruginous color from *vincta* and *lepida*, which are dark.

Scutellum not prominent, black. LEPIDA.
No yellow on fifth segment.
Thorax black, abdomen reddish.
MELLIVENTRIS.
Thorax and abdomen reddish.
Unicolorous .. . . . . RUBRA.
Marked with black, abdomen often with lateral yellow spots. BISIGNATA.

1. NOMADA VINNULA Cress. Fresno, Cal., May 4, two specimens collected upon *Melilotus indica* Alhambra and Pomona, Los Angeles county, June, five specimens (H. O. Woodworth). Previously recorded from Nevada.

2. NOMADA SUAVIS Cress. California. Unknown to me.

3. NOMADA EDWARDSII Cress. California. Unknown to me.

4. NOMADA CITRINA Cress. California. Unknown to me.

5. NOMADA CIVILIS Cress. Berkeley, Cal. (H. O. Woodworth), March 28. Four males, collected upon *Ranunculus californica* and *Brassica campestris*. Previously recorded from Colorado.

6. NOMADA RIVALIS Cress. Berkeley, Cal. (H. O. Woodworth), April 18. Two males.

7. NOMADA FLAVIPES Prov. Los Angeles, Cal. Unknown to me.

8. NOMADA FRAGILIS Cress. Berkeley, Cal., May 19. One male. Previously recorded from Colorado.

9. NOMADA INTERRUPTA, n. sp.

7.5 mm. Black, abdomen with interrupted yellow bands.

♂ Head black, densely punctured, clothed with thin, brownish pubescence; lower anterior orbits, anterior margin of the clypeus, labrum and mandibles (except tips) yellow; antennæ black above, brown beneath, third joint about half the length of the fourth. Thorax black, immaculate, clothed with thin brownish pubescence; legs black, anterior trochanters at apex, their femora and tibia beneath and at apex, the intermediate femora on apical portion beneath and at apex, the posterior femora and tibia at their apices, and the tarsi (excepting the posterior metatarsi) yellow; the claws are black. Abdomen black, with very short, thin, pale pubescence, longer on apical segment; first segment with a small yellow spot on each side, the remaining segments with yellow

bands broadly interrupted on the middle of 2–4 and narrowly on 5; a small black spot near the lateral apical margins of segments 4–5. Ventor yellow, with irregular black markings.

Habitat, Berkeley, Cal. (H. O. Woodworth), March 16. One specimen.

10. NOMADA CROTCHII Cress. San Mateo, Cal., April 13. One specimen.

11. NOMADA OBLIQUA, n. sp.

7 mm. Small, black, with brownish abdomen.

♂ Head black, densely punctured, clothed with white pubescence, thin on vertex; the lower anterior and posterior orbits, the anterior margin of the clypeus and mandibles (except tips) yellow; flagellum black above, brown beneath, second joint nearly as long as third. Thorax black, immaculate, densely and finely punctured, clothed with white pubescence, thin and short on metathorax; wings dusky on narrow apical margins; legs black, with short white pubescence, longer on anterior and intermediate femora behind; anterior femora in front and behind yellow, above and beneath black; intermediate and posterior femora with a little yellow on the apical portion beneath; all the tibiæ and tarsi yellow beneath, obscurely so in the posterior pair. Abdomen smutty red, pale on apical segments, clothed with thin white pubescence, rather long and thick on apical segments; the first segment is black except a narrow subapical reddish line; the apical margin of the second, a subapical line on the third, and the base of the remaining segments black; the sides of segments 3–4, with a large black spot, following which is an elongate, oblique yellow spot. Venter black; segments 2–5 with yellow or reddish bands, more or less interrupted laterally by large black or brown spots, which are usually confluent with the basal black of the segments.

Habitat, Berkeley, Cal. (H. O. Woodworth), March 28 to April 12. Two specimens, collected upon *Ranunculus californica*.

12. NOMADA OBSCURA, n. sp.

7.5 mm. Black, abdomen with dull red bands.

♂ Head black, densely punctured, clothed with pale pubescence, thin on vertex; lower corners of the face, narrow ante-

rior margin of the clypeus, labrum and mandibles (except tips) yellow; flagellum dull red, with a black line above, second joint about half the length of the third. Thorax black, immaculate, opaque, densely punctured, clothed with white pubescence, rather thin above and dense beneath; wings hyalin, faintly dusky at tips; legs black; underside of the femora and tibiæ of the anterior and intermediate legs, the tips of all the tibiæ, the anterior tarsi, the middle and posterior metatarsi and the apical portion of the succeeding joints yellow. Abdomen black, opaque, finely punctured, clothed with short griseous pubescence, longest on apical segments; the apical margins of the segments are dull reddish brown. Venter dull red, the apical segment and the basal portion of the first black; the broad apical margins of the other ventral segments dusky, merging into large dark spots on the lateral portion.

Habitat, Berkeley, Cal., March 18. One specimen, collected upon *Ranunculus californica*.

13. NOMADA OPPOSITA Cress. California. Unknown to me.

14. NOMADA VINCTA Say. Berkeley, Cal, May. Two specimens. Previously recorded from the Eastern, Middle and Western States.

15. NOMADA LEPIDA Cress. Berkeley, Cal., February, March and April. Twenty-six males, collected upon *Ranunculus californica* and *Brassica campestris*. Many of these specimens have the scape entirely black instead of yellow in front, and the legs generally have more black than Cresson's type. Previously recorded from Colorado, Illinois and Texas.

16. NOMADA MELLIVENTRIS Cress. ♂.

♀ Differs from the male in that the pubescence on the face is much shorter; the third joint of the antennæ is about one-half the length of the fourth.

In all of my specimens the first segment of the abdomen is black at the extreme base, both above and beneath, the two black spots mentioned by Cresson sometimes fusing with this. Sometimes there is a little black on the apical margins of segments 2–4.

Berkeley, Cal., March 15 to April 18. Ten specimens, collected upon *Brassica campestris* and *Ranunculus californica*.

17. NOMADA RUBRA Prov. Fresno, Cal. (H. O. Woodworth), April 28. Six females collected upon *Eschscholtzia californica* and *Medicago sativa*.

18. NOMADA BISIGNATA Say. Berkeley, Cal., March 15 to April 13. Thirty-six specimens, collected upon *Ranunculus californica*.

Var. RUBRICA Prov. Berkeley and Visalia, Cal., March, May, June. Seven specimens, agreeing quite well with Provancher's description, but seem to be distinctly a variety of *bisignata*.

———0———

SOME NOTES ON COLEOPTERA FOUND ON SPECIES OF CEANOTHUS.

BY RALPH HOPPING, Kaweah, Cal.

The following list of Coleoptera has been formed from specimens collected during the past three years, 1896–7–8, on the various species of *Ceanothus* found on the Kaweah river and tributaries, in Tulare county, California.

The species of *Ceanothus* are hard to distinguish; and, as many of these beetles are found on nearly all of the species when in flower, I have not tried to separate them.

Ceanothus is one of our prettiest flowering shrubs, varying from two to three feet at an elevation of 7,000 feet to eight and nine feet at an elevation of 1,000 feet. The flowers are generally white, but on one species they are pale blue. *Ceanothus* is variously known as ironwood, blue brush, deer brush, buck brush, snow brush, etc., and is generally one of the species that goes to form *chaparral*. The species found in this vicinity are *Ceanothus cordulatus*, *C. cuneatus*, *C. divaricatus*, *C. diversifolius* and *C. parvifolius*. *C. cuneatus*, although abundantly flowering, forms an exception, as beetles are not found on the flowers, but only on the leaves. I have found some curious color variation, due to difference in elevation, which is from 1,000 to 7,000 feet.

This list is not considered complete, as I have several undetermined species, and many will, no doubt, be added by further collecting.

I have to thank Mr. Liebeck for many of my determinations and much help.

Amphichroum scutatum Fauv.—Very common at an elevation of 4,000 to 6,000 feet.

Anthobium auriſluum Fauv.—Found with *scutatum*. These two species are found in the flowers in immense numbers.

Exochomus marginipennis Lec.—Rare; from 1,000 to 3,000 feet; on the leaves.

Anthrenus scrophulariæ Linn.—Common from 1,000 to 6,000 feet. At 1,000 feet this species has a white saddle marking on the elytra, but the specimens taken from 4,000 to 6,000 feet are like our pretty little eastern specimens.

Anthrenus varius Fabr.—Very common from 1,000 to 7,000 feet, but varying much in size.

Cryptorhopalum apicale Mann.—Not common; 1,000 feet to 3,000. Found with the following species:

Orphilus glabratus Fabr.—A very common species at 1,000 feet, but becoming rarer as the elevation increases.

Grynocharis pilosula Cr.—Common from 1,000 to 4,000 feet. A black variety is found with this, although not common. The black variety seems to be more plentiful as the elevation increases.

Macropogon testaceipennis Mots.—Very rare. My one specimen is an odd color variation, the anterior part of the elytra being reddish, the rest black. Typical specimens are a pale color. My specimen was taken at an elevation of 4,000 feet.

Cardiophorus fenestratus Lec.—Rare. I have taken but eight specimens in eight years, at 1,000 to 2,000 feet.

Limonius maculicollis Mots.—Not common; 1,000 to 5,000 feet.

Limonius occidentalis Cand.—Very common, but most common at 3,000 and 4,000 feet.

Limonius canus Lec.—Rare; found with *Sericosomus flavipennis* Mots.

Athous axillaris Horn.—Very rare; 4,000 feet.

Sericosomus flavipennis Mots.—Very common; from 1,000 to 7,000 feet. Rarely varies, although sometimes a black specimen is found.

Perothops wittieki Lec.—Very rare. One specimen at 4,000 feet.

Anthaxia deleta Lec.—Very rare. Have found but three specimens at 7,000 feet.

Acmæodera plagiaticauda Horn.—Rare. Have but three specimens, taken at 4,000 feet.

Acmæodera mariposa Horn.—Very rare, having taken but one example.

Acmæodera dohrnii Horn.—One specimen, doubtfully referred to this species, was taken with the above.

Podabrus cavicollis Lec.—Common from 1,000 to 4,000 feet.

Malachius thevenetii Horn.—Not common; found from 1,000 to 5,000 feet.

Malachius macer Horn.—A very common beetle, not often found on *Ceanothus*, but generally on a small *Bœria*.

Malachius mixtus Horn.—Very common, but, like the above, not often found on *Ceanothus*.

Microlipus laticeps Lec.—Very rare. Found on leaves at 1,000 feet.

Listrus interruptus Lec.—Common from 1,000 to 5,000 feet.

Listrus difficilis Lec.—Very common; found same as the above.

Trichodes ornatus Say.—Common at all elevations.

Hoplia callipyge Lec.—Our common rose beetle, but often found on the flowers of *Ceanothus*.

Dichelonycha truncata Lec.—Rare. Found from 1,000 to 4,000 feet.

Poecilobrium chalybæum Lec.—Not common. Found from 1,000 to 5,000 feet.

Callimus cyanipennis Lec.—Common from 1,000 to 3,000 feet.

Callimus ruficollis Lec.—Common from 1,000 to 5,000 feet.

Callimoxys fuscipennis Lec. Very common from 1,000 to 6,000 feet.

Clytus lanifer Lec.—Not rare. Found from 5,000 to 7,000 feet.

Acmæops longicornis Kirby.—Rare. I have three specimens.

Strangalia delicata Lec.—Common at 1,000 feet, but becoming rarer at higher elevations.

Leptura laetifica Lec.—Rare. Found from 5,000 to 7,000 feet.

Leptura, n. sp.—Found with *laetifica* and closely resembling it, the most conspicuous difference being in the color of the legs, which are red, while in *laetifica* they seem to be invariably black.

Leptura sanguinea Lec.—Found with the above two species. These are all rather rare beetles.

Leptura molybdica Lec.—Common. This species at from 1,000 to 2,000 feet is evidently the typical form with red epau-

lettes, but at 7,000 feet this beetle is invariably a dark blue all over.

Pachybrachys melanostictus Suffr.—Not common. Found on the leaves from 1,000 to 5,000 feet.

Pachybrachys lustrans Lec.—Not common. I have found three varieties of this at 4,000 feet.

Sixinis sinuata Lec.—Not common. Like the above, found on the leaves, from 3,000 to 5,000 feet.

Luperodes torquatus Lec.—Common at about 5,000 feet.

Microrhopala melsheimeri Cr.—Not common, at 4,000 feet. Found on the leaves.

Odontota californica Horn. Found with the above. Not common.

Stenochidus gracilis Lec.—Common. Found from 1,000 to 4,000 feet.

Cistelo opaca Lec.—Common from 1,000 to 5,000 feet.

Isomira discolor Lec.—One of the commonest beetles from 1,000 to 7,000 feet.

Asclera discolor Lec.—Found in limited numbers at 4,000 to 5,000 feet.

Anaspis atra Lec.—Found in great quantities from 1,000 to 6,000 feet.

Anaspis collaris Lec.—Rare; 4,000 feet.

Mordella scutellaris Fabr.—Common from 1,000 to 3,000 feet.

Corphyra punctulata Lec—Found from 1,000 to 7,000 feet. Common. From 1,000 to 4,000 feet this beetle is of a straw color, and much smaller than the Alpine variety, the elytra of which are a shining black.

Cantharis stygica Lec.—Common. At 1,000 feet this is not found on *Ceanothus*, and is a vivid green, but at 3,000 to 6,000 feet is a uniform dark blue.

In the four species where I have noted color variation in the foot-hill and Alpine specimens I have not found any that were intermediate.

From the number of determinations by Dr. LeConte, his specimens must have been collected on *Ceanothus*, as many of these species are found nowhere else.

FOUR NEW SPECIES OF BUTTERFLIES FROM SOUTH AMERICA.

LEVI W. MENGEL, Reading, Pa.

(See Plate.)

Epiphile Zipa, sp. nov. Expanse about 2 in. Upper side of superior wings orange and dark brown. The orange darkens at base of wings to light brown; otherwise uniform. The orange extends half way to the apex, along the anterior margin; from the base along the sub-median nervure almost to the inner angle and thence diagonally across the wing to the costa. The orange thus makes a large triangular patch, almost surrounded by brown. The remainder of the superiors brown, uniform, with the exception of a strongly marked white spot near the apex. The inferiors are a rich blue, fading to brown along the interior and exterior margins. There are two very light blue spots in the median nervures. Along the anterior margin, half way to the apex, is an orange diffusion fading to brown, along the sub-costal nervure.

Under side of superiors very much paler than above, the orange changing to yellow, darker near base and extending along the sub-median nervure almost to the exterior margin. Remaining portion of wing very light brown, with a blue black ocellus, surrounded by a yellow edge, near apical angle. The ocellus is surmounted by a decided white spot. Inferiors pale brown, changing to light reddish brown along the inner and exterior margins. A row of well-marked ocelli extends along margin. A triangular silvery yellow spot on the costa extends almost to discoidal cell, with the apex of the triangle pointing downward.

Habitat: Neiva, Tolima, U. S. Columbia.

Archonias æque, sp. nov. Expanse 1⅛ in. Ground of superiors dark, nearly black, with a row of well-marked white spots running from the apex to the inner margin, midway between the base and the inner angle. Also a row of smaller white spots running parallel to the exterior margin, with a few white dashes near the apex. Base of inferiors black, with a bar of spots extending from anterior margin two-thirds across the wing towards the inner margin. The upper part of this bar is white, while the remaining portion, including part

in cell, is deep orange. The exterior parts are black, though not so intense as the base. A row of decided white spots runs parallel to the exterior margin. There are a few faint whitish dashes on the margin. Interior margin, white.

Under parts of superiors, general ground work black, the diagonal row of white spots of upper side showing through wing. The exterior margin is covered with a row of arrow-shaped lunules, which are yellow at apex, changing to white at inner margin. Under parts of inferiors yellow, with black diffusion near base. A serrated black line extends from apex to inner angle, making a number of toothed or arrow-shaped markings along the margin. The nervures run to the apices of these marks. Body above and below black, with abdomen yellow.

This species is nearest to *A. chrysolophana*, Stgr., on upper surface, but differs entirely in the arrangement of the white row of spots on the superiors, while the bar of the inferiors is lemon yellow, no white being present, as in *A. xeque*. The under side of *chrysolophana* is white, with only a few dashes of lemon yellow along the veins.

The under side of *A. xeque* more closely resembles the under side of *A. toca*, Doubl., than *chrysolophana*, but is again indescribably different, while the upper sides of both wings in toca are solid white, no yellow or orange being present.

Described from examples in collection of Dr. H. Strecker and the author.

Habitat: Neiva, Tolima, U. S. Columbia.

Mesosemia yaporogosa, sp. nov. Expanse 1⅜ in. Superiors greenish blue, with black apices; black extending to inner margin. A bar of white extends from the costa half way across the wing, fading into blue. Inside the white bar a band of black passes across the wing to inner margin. A large circular black spot covers part of the discoidal cell, extending, however, partly beyond. This spot is half way between the base and the apex. One-third the extent of the wing, away from the base, another black line extends from costa to inner margin. Inferiors blue, same shade as superiors, with black margins extending quite to inner angle. Two black bars pass from interior margin, meeting at inner angle, enclosing a crescent of blue. Inner margin brown.

Lower part of superiors grey brown, with white bar extending entirely across the wing. Black spot of upper side appears enclosed in oval of brown. A second oval band encloses the first. Lower part of inferiors generally brown, becoming paler towards exterior margins. Wing traversed by band of dark brown, extending from costa to inner angle, across middle of wing. Several paler bands mark wing along outer margin. A black spot appears in discoidal cell.

M. yaparogosa is nearest to *M. lamachus*, Hew., differing in color and the arrangement of bars of upper surface. The white bar is also absent in lamachus. On the under side the arrangement is totally different, besides the absence of a white bar in lamachus. Lamachus also has several ocelli and spots on under surface of superiors, while the brown ovals are absent.

Habitat: Neiva, Tolima, U. S. Columbia.

Siseme nigrescens, sp. nov. Expands 1 3-16 in. Upper side of both wings black. On the superior wing a bar of very faint white spots extend from costa to inner margin. Another bar of the same faint marks runs parallel to outer margin. Inferiors marked with two red spots near inner angle. Under parts of superiors black, with faint marks of upper side developed into well-marked white bars, the exterior row being made of separate spots, while the inner bar is solid. Base and inner margin of inferiors blue grey suffusion, passing to black. A decided white bar traverses the wing from the anterior margion almost to inner angle, while a row of faint spots, grey in color, runs parallel to outer margin. Two red spots near inner angle. Exterior margin tipped with white. Body above and beneath black, with abdomen grey.

Under parts resemble *S. caudalis*, Bates, from which, however, it differs entirely.

Habitat: Neiva, Tolima, U. S. Columbia.

THE CASTLE-BUILDING SPIDER (LYCOSA DOMIFEX).

By J. L. Hancock.

The length of the adult female spider varies from sixteen to twenty-one millimeters (approximating three-quarters of an inch). Using the largest of these for a type specimen, the width of the abdomen is eight; the cephalothorax is nine in

length, seven in width and four and a half millimeters in height. The cephalothorax, or forward part of the body, is dark grayish brown, with a lighter yellowish wedge-shaped band in the middle, extending nearly the entire length ; in old specimens the whole head portion is nearly uniform light gray. The middle pair of eyes (for there are three rows) are encircled with yellow hair, the extreme front being of the same color. The abdomen in old specimens is yellowish brown, obscurely marked. A median narrow dark band, visible for nearly the first half, joins a darker facing in front and gives off laterally a diagonal stripe, followed with a lighter interrupted stripe in the same direction ; the middle band shades imperceptibly behind, with a broad, indistinct band covering the whole remaining upper surface, becoming narrower and terminating at a point at the end of the abdomen ; frequently this band shows indications of being divided transversely by five faint dark yellow thin stripes ; its lateral margins are circumscribed by lighter spaces between the almost obscured stripes. Specimens just arriving at maturity have the abdomen a rich, dark brown ; the narrow stripe in front on the abdomen is lighter, the broad band is wanting ; five thin, transverse yellowish gray stripes divide the abdomen backwards, commencing with the most conspicuous one a little in advance of the middle. The abdomen often appears very dark at first glance, the markings upon it not being apparent. In the adult underneath the abdomen is pinkish yellow, the sternum is light and the lip darker. The legs increase slightly in thickness, also becoming lighter colored from the fourth to the first pair ; the first legs are light gray, yellowish toward the body, densely clothed with a few scattered long dark hairs, and the hind legs are dark or yellow, with blackish spines. The first and second legs have the last three joints—tibia, metatarsus and tarsus—black beneath ; near the body these legs are lighter, the femurs are yellowish olive. The mandibles are covered with yellow hair on the front.

I have recently examined a male specimen of *Lycosa nidifex*, Marx, kindly sent to me by Mr. Nathan Banks. The specimen, I am informed, has similar castle-building habits such as described in ENTOMOLOGICAL NEWS, February, 1899. The type of *nidifex* has not been recovered in the Marx collection, but Mr. Banks sent me the above specimen, taking it to be

that species. It is closely allied, if not identical, with my *domifex*, and though the markings are different they are not any more, perhaps, than attains in different sexes of the *Lycosidæ*.

The points wherein the male *nidifex* differs from the description given above are as follows: There is a dark band one-third the width of the abdomen on the venter and the whole coloring above and below on the body is darker; a noteworthy difference occurs on the legs underneath; the third and fourth joints of all the legs are darkest, getting lighter toward the extremities, while in *domifex* the dark markings are confined to the last three joints of the first and second pair of legs. There are apparently no markings on the upper surface of the abdomen in the alcoholic example under consideration.

It is hoped a study of more material the coming summer will bring forth new light on these interesting members of the *Lycosidæ*.

———0———

NEW MYRMELEONIDAE.

By Nathan Banks

Acanthaclisis hageni n. sp.

Very similar to *A congener*, and may be best described by comparison with that species. The vertex is shining black (not shining in *A. congener*) and there are transverse lines of white hairs, and two patches of them behind; pronotum has two small spots in front farther apart than in *A. congener*, and outside of them two others, near the middle of each side is a large pale spot, and a transverse one each side on the hind margin, (in *A. congener* there are two pale spots in front, a row of three each side, and two transverse ones on the hind margin); on the middle of mesothorax in front there are two large oblique pale marks (in *A congener* there are four subequal spots forming a square); on mesoscutellum the pale spots are much larger. The veins of the wings are less interrupted with pale and those of the posterior part are almost wholly black. The wings are narrower than in *A congener*, especially noticeable in the middle of the hind border. The radial sector has ten branches, seven before the last transversal before the pterostigma (in *A congener* there are eight branches, five before the last transversal before the pterostigma. Phœnix, Arizona, May [Dr. Kunze].

Brachynemurus maculosus n. sp.

Face yellow, between and above antennæ a large dark area from eye to eye, sometimes showing a pale double spot in the center, the dark is continued over upon the vertex in the middle; antennæ brown; palpi pale, last article dark at tip; prothorax moderately

short, yellow, with four brown lines, the lateral ones only reach the sulcus; anterior part of mesothorax mostly dark brown, with a pale narrow stripe each side, each lateral lobe shows a small pale spot above the base of fore wing; scutellum of mesothorax pale with a medium dark stripe (not one each side as in most species); metathorax pale with a median brown spot forked and divergent in front, sides dark brown; pleura of thorax almost wholly dark; legs pale yellow, without marks except base and apex of the tarsi dark; abdomen pale at base, lineate with dark, dark at tip; wings hyaline, costals forked only near tip, three transversals before the radial sector, pterostigma pale, dark on base; veins dark, interrupted with pale, except the vein behind radial sector which is wholly pale, at one end of most of the transversals (including those ending on radial sector and fork of same) there is a large dark spot, also one at end of each costal and a rather larger mark terminating the pale vein near the tip of wing; hind wings much less marked. Length to tip of wings, 20 mm.

Tehama, California, August [A. P. Morse].

This species belongs in the group of *B. abdominalis* which may be distinguished by having a median stripe on the mesoscutellum, and a wholly pale vein behind the radial sector. The four species may be separated as follows:

1—Radial sector wholly dark, four stripes upon the pronotum....2
Radial sector more or less pale, a stripe on each side of pronotum,.....3

2—Spots along radial sector, small species.....MACULOSUS.
No spots along radial sector.....BLANDUS.

3—Spots scattered, basal part of radial sector interrupted with dark.....ABDOMINALIS.
Spots mostly arranged along the radial and median veins, basal part of radial sector wholly pale.....TENUIS.

Brachynemurus blandus Hag.

B. coquilletti Currie.

There is, I think, no doubt that Currie's species is identical with Hagen's. The peculiar markings of the pronotum in *B. coquilletti* agree with those ascribed by Hagen to *B blandus*, and to no other form. There is considerable variation in size in this as in other species of the genus.

Brachynemurus pallidus n. sp.

Pale yellowish, dark around bases of antennæ, two dark spots on vertex, tips of palpi dark, antennæ pale brownish; prothorax shows only the lateral stripes and these are very indistinct, but each tip shows a prominent dark dot at the sulcus; thorax with a few dark spots, no signs of marks on mesoscutellum; abdomen pale yellow, with a median and lateral dark line, apex obscure; legs pale yellow, unmarked, except the joints of tarsi are tipped with dark; wings clear, without marks, veins dark, interrupted with pale, but without any adjoining clouds, pterostigma darker at base; hind

wing similar to fore wing; costals forked only near the pterostigma one to three transversals basad of radial sector. Length ♀ 18 mm, expanse 37 mm. Phœnix, Arizona, September [Dr. Kunze].

Nearer to *B. minusculus* than to any other species, but easily separated from that by the lack of median lines on the pronotum, unmarked hind femora, etc.

SOME NEW SPECIES OF ATHYSANUS.

By E. D. Ball, Fort Collins, Colo.

Athysanus frigidus, n. sp.

General appearance of *A. exitiosa* broader and shorter. As broad as *obsoletus*, with a rounder vertex. Length, ♀ 4-4.5mm, ♂ 3.5mm; width, ♀ 1.6mm, ♂ 1.2mm.

Vertex two and one half times wider than long, half longer on middle than against eye, the surface sloping and broadly rounding to the tumid front; ocelli distant from eyes; front wider than long, twice wider at apex than the parallel margined clypeus; pronotum half longer than vertex, lateral margins very short, humeral margins long, rounding; elytra slightly longer than the body in both sexes, narrowing behind, venation normal, apical cells rather short.

Color: Grayish or brownish white; a large oval spot on either side the middle of the anterior margin of the vertex, a large round one between the ocelli and the eyes, sometimes three small ones on the disc, forming a triangle, a pair of elongate marks on the pronotum back of the anterior margin and a pair of spots on the disc of the scutellum, black; elytra covered with a whitish "bloom," the nervures obscure; face light, a pair of large spots below those on the vertex, another pair, irregular in shape, near the apex of front. Light colored specimens may lack some of the spots on face, while darker ones—and the males as a rule have brown stripes—between the light veins of the elytra.

Genitalia: Female, ultimate ventral segment twice longer than penultimate, shallowly emarginate posteriorly, with a broad, slightly, roundingly, bilobed, median tooth: pygofers twice longer than wide, equaling the ovipositor; male, ultimate ventral segment long, half longer than valve, valve broad, obtusely rounding, plates broad at base, regularly narrowing to the slightly divergent points, scarcely twice longer than the valve.

Described from numerous specimens collected at Fort Collins, Colo., and back into the lower foot-hills. Found only on *Artemisia frigida*, to which the white color and powdery "bloom" of both larvæ and adults well adapt it.

Athysanus arctostaphyli, n. sp.

Shorter and stouter than *A. instabilis*, with shorter elytra,

deep chestnut brown; vertex yellow, with transverse fuscous lines. Length, ♀ 4mm, ♂ 3.5mm; width, ♀ 1.6mm, ♂ 1.2mm.

Vertex obtusely angulate, twice wider than long, not quite two-thirds as long against eye as on middle, anterior margin thick, rounding to the face; front a little longer than wide, but little wider at the apex than the clypeus; pronotum strongly arcuated anteriorly, the side margins very short; elytra short and stout, reaching the end of the abdomen, appendix minute, apical cells short, sometimes a second cross nervure between the sectors.

Color: Vertex tawny yellow, a line between the fulvous ocelli, broken forwards in the middle, a transverse band back of this, and a crescent near each basal angle connected by a curved line, dark brown; pronotum yellowish, irrorate with fuscous except on the anterior margin; elytral nervures pale, testaceous, heavily margined with fuscous; face yellow, sutures, arcs of the front and a spot on the clypeus fuscous; below brownish fuscous, legs annulate with fuscous.

Genitalia: Female, ultimate ventral segment little longer than penultimate, posterior margin shallowly excavated either side of the middle; pygofers over twice longer than wide, equalling the ovipositer. Male, valve broad, obtusely rounding; plates broad at base, triangular, three times longer than valve, outer margin thickly set with coarse hairs.

Described from numerous specimens taken in the mountains west of Fort Collins, Colo., between 7,000 and 9,000 feet altitude, and one specimen from Leadvile, Col. (C. P. Gillette). The Fort Collins specimens were all taken, together with their larvæ, from bearberry (*Arctostaphylos uva-ursi*).

Athysanus alpinus, n. sp.

General form and color of *obsoletus*, with the longer vertex of *extrusus*. Pale clouded yellow, with two transverse fuscous bands on the vertex. Length, ♀ 5.5–6mm, ♂ 4.5mm; width, ♀ 2mm, ♂ 1.5mm.

Vertex nearly as long as the pronotum, twice as long on the middle as against eye, three-fifths as long as the basal width, obtusely angulate before, the margin blunt and rounding; front, no longer than its basal width, twice longer than clypeus; pronotum two and one-half times wider than long; elytra shorter than the abdomen in the female, sligthly exceeding it in the male

Color: Dirty straw yellow, a fuscous, transverse band between the ocelli, angled forwards nearly to the apex of the vertex, a brownish fuscous band just behind and parallel with the first, forking at each end, the anterior forks running forward to the ocelli, the posterior ones back to the basal angles; pronotum with four

longitudinal stripes commencing back of the anterior margin, the outer pair divergent, the inner pair uniting across the scutellum; elytral nervures light, apical cells fuscous margined in the male; face yellow, a spot above either antenna and about seven arcs on the upper part of the front, fuscous.

Genitalia: Female, ultimate ventral segment half longer than the penultimate, outer angles rounded, a stout median process tipped with two divergent teeth, either side of which is a narrow angular emargination. Male, valve as broad as the ultimate segment and about half as long, plates triangular, two-thirds the width of the valve and two and one half times as long, their margins straight or slightly concave.

Described from fifteen specimens taken from a damp mountain meadow on the Little Beaver, Larimer county, Colorado, at an elevation of 9,500 feet.

NOTES ON EASTERN N. A. CYCHRUS.

GEO. A EHRMANN, Pittsburg, Pa

Cychrus nitidicollis Chev.

I have taken this species but once in this locality, a single specimen; I have, however, taken it several times at Charleroi, Washington county, and received it from Fairmount, W Va. All were found during the months of August and September

C. nitidicollis, var. **brevoorti**, Lec

Of this extremely rare form I have found but one specimen, at Charleroi, November 12, 1896, and since then have not happened across it.

C. stenostomus Web.

I only found three specimens under dry leaves at base of beechnut tree, on September 4, 1896, and none since

C. stenostomus, var. **leconte**i, Dej.

The most abundant of the *Cychri* found in this section.

I have taken this form in every month of the year, sometimes during January imbedded in ice, and holding these in my hand, the heat of which would soon resuscitate them.

C. stenostomus, var. **bicarinatus**, Lec

I found one specimen only of this rather rare form on September 9, 1897.

C. canadensis Chd.

Is recorded as being found at Pittsburg. I find, however, after examining the collections in this section, that all specimens are from Prof. Jerome Schmitt, of St. Vincent's College, who has frequently taken it at Chestnut Ridge, Cambria county, Pa.

C. elevatus Fab

This is also recorded as found in this section. The specimen upon which the record in Hamilton's list of Coleoptera of Western Pennsylvania, is based, giving the locality as Jem-

nette, Pa., was originally in my possession and is from Green Ridge Mo. Am of the opinion this species does not occur in southwestern Pennsylvania.

C. viduus Dej.

I have apparently been more fortunate than most collectors in the capture of this species, yet all were taken in a small, restricted locality at Baldwin's station.

Several specimens have often been found very close together, as many as four at one time under a stone about one foot in diameter. It has often been a great pleasure to me to hold this beautiful insect in my hand and admire its graceful form.

Though I have had as many as three specimens in my hands at one time, it does not always happen that success rewards a search for this species, having many times turned over so many stones, logs, sticks and bark that my back felt broken from the exertion; on glancing backward over the route followed in the vain search, it looked as if it had been struck by a cyclone

I have held a live *Cychrus viduus* in my hand whose head was imbedded in the mouth of a shell of the large land snail, who was so intent on his occupation that transferring my hold from him to the shell and letting him hang suspended did not interfere with him in the least; he seemed so absorbed in the process of feeding that continual maneuvering in this manner failed to distract his attention from his prey

The species is found here from April until the end of September.

C guyoti Lec

This species is so rare that it is represented in but few collections

Prof. Jerome Schmitt, of St. Vincent, Pa., has a fine pair received some years ago from North Carolina.

As far as recorded, this species occurs only in the mountain regions of that State. (A note concerning the above record will be published in the September number.)

C ridingsii Bland.

This very pretty little species, in appearance so much like a diminutive *C. andrewsii*, has only been found at Uniontown and Cresson, Pa., proving it to be a strictly mountain species, as is the case with *C. canadensis*.

C. andrewsii Harr.

The species is found here, though not so restricted as *C. viduus*, nor found as often, yet the habits are similar.

This has only been taken from June 28th to September 14th and does not seem to cover as long a perion as *C. viduus*.

In looking for *Cychrus*, I find wherever land snails are abundant, some one of the species will be found.

Cychrus should always be sought after in damp, shady and stony places. During my collecting experience of twenty years, have never found any species but *C. lecontei* hibernating.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfullyreceive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer for each number three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—ED.

PHILADELPHIA, PA., JUNE, 1899.

EDITORIAL.

"Prior to 1618 it was supposed that all small animals were spontaneously generated; for instance, eels were supposed to be generated from the slime of the Nile, and maggots were thought to be spontaneously generated in meat. To the examination of this very point the celebrated Francesco Redi, physician to the Grand Dukes Ferdinand the Second and Coomos the Third, of Tuscany, and a member of the Academy del Cimento, addressed himself in 1618. He had seen the maggots of putrefying flesh and reflected on their possible origin. But he was not content with mere reflection nor with the theoretic guesswork which his predecessors had founded on imperfect observations. Watching meat during its passage from freshness to decay, prior to the appearance of maggots, he invariably observed flies buzzing around the meat and frequently alighting upon it. The maggots, he thought, might be the half-developed progeny of these flies. The inductive guess precedes experiment, by which, however, it must be finally tested.

"Redi knew this and acted accordingly. Placing fresh meat in a jar and covering the mouth with paper, he found that, though the meat putrefied in the ordinary way, it never bred maggots, while the same meat placed in open jars soon swarmed with these organisms. For the paper cover he then substituted fine gauze, through which the odor of the meat could rise. Over it the flies buzzed and on it they laid their eggs, but the meshes being too small to permit the eggs to fall through no maggots were generated in the meat. They were, on the contrary, hatched on the gauze. By a series of such experiments Redi destroyed the belief in the spontaneous generation of maggots in meat, and with it doubtless many related beliefs."

Suppose after having been dead, say about 260 years, Redi should come back to life and pick up a copy of *The New York Medical Journal* of December 10, 1898, and read an article entitled, "The Cultivation of the *Plasmodium malariæ*," by L. H. Warner, M. D. A portion of this paper reads as follows: "Dr. Walter F. Scheele, of New York City, recently conducted a number of experiments and investigations in mosquito development which prove that ***there are three distinct types of mosquitoes***, each possessing ***a distinct degree*** of poisoning power in its sting. His claims are ***that mosquitoes originate*** and develope in foul water, especially when vegetable or animal albuminous substances are present. In the first stage of its development ***the mosquito is a conglomerate mass of different bacteria and microbes,*** formed by decomposing matter, composed of vegetable and animal albumen. The latter being in a state of decomposition is a deadly poison. * * * *

"Upon emerging from the water ***the mosquito is charged with a surplus of albuminous poison, which must be got rid of immediately or death occurs; hence it instinctively seeks to preserve its life by stinging and injecting the injurious albumen into the only objects that will receive it, man and beast.***" If Redi came to life and read this rot, he would undoubtedly be disgusted with the nineteenth century and immediately desire to return to the "shades." The most charitable thing we can say of the editor of *The New York Medical Jonrnal* is that he never read the manuscript of the article, or he would not have permitted such stuff to appear in a respectable periodical.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

THE AMERICAN ENTOMOLOGICAL SOCIETY intends to prepare a Directory of American Entomologists, which shall contain the names, addresses, special orders studied, etc. Such a work can't fail to be extremely useful. Its success will largely depend on the interest entomologists take in it and the promptness with which they supply the necessary information. Please send to ENTOMOLOGICAL NEWS, the Academy of Natural Sciences, 1900 Race street, Philadelphia, the following information in regard to yourself and any friends interested in the study of insects:

Name,
Correct address,
Special study, orders, etc.,
Have you a collection?
Do you exchange specimens?

FELDMAN OUTING.—The Feldman Collecting Social at its last meeting decided to hold a field meeting at Anglesea, New Jersey, on the coming July 4th. The undersigned committee of arrangements was appointed, with plenary power, and herewith extend a cordial invitation to members of the different Entomological Societies to be their guests on the above date. The Keystone Rod and Gun Club will be the headquarters of the meeting. All collectors who desire to attend are cordially invited to be the guests of the Feldman Collecting Social on Tuesday, July 4th. The quarters, however, will be open from Saturday, July 1st, until afternoon of July 4th, thereby enabling anyone desiring to spend several days collecting at this place to do so, in which case the committee will be pleased to furnish, upon application, any desired information regarding several days' accommodations. It is important that those desiring to attend the meeting of July 4th should notify the committee as early as possible, in order that they may know how many to provide for, and thus assure comfort and sufficient room for all.

THEO. H. SCHMITZ, Chairman,
No. 3104 Baring street, West Philadelphia.

Charles Boerner, H. W. Wenzel, Philip Laurent.

CHRYSIS SCHLETTERERI, MOCSARY.—A few years ago, I caught at Socorro, New Mexico, a beautiful species of *Chrysis* resembling both in color and structure the European *C. ignita*, but smaller and more slender than that insect. I now find that it agrees with the desception of *C. schlettereri*, Mocs., from Tacubaya, Mexico; so that name is to be added to our faunal list. T. D. A. COCKERELL.

ON the best method for killing large insects.—Having received several inquiries as to the easiest and quickest plan for killing large specimens, it may be of some interest to give my *modus operandi*. Here in the tropics the need for such a plan is greater, of course, but

I believe many a fine specimen has been ruined by the collector's relying wholly upon the cyanide jar.

My first "snag" for the cyanide process was a quart of lively *Heterogomphus chervolati*—Burm, and Stratægus julianus—Burm. They reveled in the cyanide. There was no boiling water. I made a hypodermic syringe by drawing the tip of my medicine-dropper to a fine, slender point in an alcohol flame. By puncturing the thick wall of the metasternum with a strong setting-needle I could easily insert the "hypo" and inject three or four drops of gasoline directly into the body cavity. Death was instantaneous; no second dose required. I now use the same plan for all large insects. Even the largest sphingids like *Amphonix medor*—Cr. are killed in two seconds - without turning a scale.

Care should be taken to have the bulb of the "hypo" fit air-tight the tip should taper gradually and with a slight curve. It should be inserted from beneath into the middle of the thorax, and if well managed little or no gasoline should appear on the outside. The tip of the "hypo" may be protected by thrusting it into a good-sized cork. "Hypo" and small vial of gasoline may be carried in the same small pocket. O. W. BARRETT,
Tacubaya, D. F, Mexico.

ECDYSIS OF *Automeris leucane*—Hbn. The thin cocoon is made of coarse, gluey, red-brown silk; 5 mm. inside the front end is a transverse wall or screen with meshes (usually) of about 1 mm. This wall is fastened rather loosely to the cocoon and is not "dissolved," scarcely softened even, by the imago, but merely loosened at one side. The abdomen at once lengthens 5 mm. or 8 mm. after the pupa case is ruptured and so good "push power" is developed. The hinges of the screen door being broken the ecdyis is completed in three to five minutes, the front end of the cocoon offering but little resistance. Twenty to thirty minutes after the screen snaps back into place the wings are full-sized. O. W. BARRETT

A NEW RECORD IN AN ODD PLACE.—In January of 1899, while in practice in Los Angeles, a patient presented himself complaining of pain and discharge of watery fluid from one of his ears.

Examination revealed a tick that was easily removed The tick looked unfamiliar, and on forwarding it to the Dept. of Agriculture at Washington it was discovered to be *Argasmegini*, Duges, originally described from Mexico and not hitherto reported from the United States.

The patient had never been twenty miles away from Los Angeles, and had in the autumn spent a few weeks in the country, but had not been sleeping out of doors. A. DAVIDSON, M. D.,
Clifton, Arizona.

SPHEX ELEGANS.—This wasp for some reason or other is very seldom found among the many other wasps one may capture in a few days of collecting; yet they must be common in summer, for their

nests are frequently to be found in the stems of the white sage so common throughout South California.

For nesting sites they prefer the larger stems, first gnawing through the thin partitions opposite the leaf insertions, which naturally divide an otherwise hollow stem. The parent wasp first packs the bottom of this tube with very fine, grass-like fibres; which, on investigation, prove to be fine strips of the loosely fibrous bark of Audibertia polystacha, from 1-4 inch to 1 1-2 inches in length. On this is laid the larval food supply which consists of, on an average, of seven or eight tree crickets. The egg is laid on the breast of one of the tree crickets, a wad of bark fibre is placed on the top which forms the base for the next cell, etc. A copious wad, sometimes three or four inches in depth, protects the topmost cell.

The cocoon when completed is one inch long and one quarter inch wide at its widest part at the cephalic end. It has two coverings, the outer a loose sac resembling tissue paper, of a grayish brown color, the inner somewhat resembling that of the common mud dauber, but stouter and denser.

The majority of the adult wasps hatch out in July and August and pass the winter concealed in crevices or other convenient shelters in trees and rocks; a few, probably not more than 15 or 20 per cent., remain in the larval stage till the following May. They make their escape by forcing their way through the fibrous divisions above, seldom cutting their way through the sides of the stem.

P. trypoxylonis, Townsend; may, as usual, be found to have consumed the larval food. Of genuine parasites there are few, all of them attack the larva after it has spun its cocoon. They are *Epistenia cærulata*, *Photopsis unicolor*, *Photopsis ferrugineo.*

A. Davidson, M. D.,
Clifton, Arizona.

Notes on California Wasps.—The Nesting Habits of Ancistrocerus Birenimaculatus, Sauss.—In the end of February or in the first week of March, before the increasing warmth of spring has yet stirred any of the other wasps, this one has broken its way through its cell and begun building for its coming brood. It usually constructs its cells in the hollow stems of plants or in the deserted tunnel of some other species. If the cavity is a narrow one, these cells are placed in a single series; if wide, they are grouped together laterally, in sufficient numbers to fill the cavity. The cells vary in size according to the cavity they occupy, their average external measurement being 7-19 inch long by 3-19 wide. They are circular on section, truncate at the ends, and are built of little pellets of clay pieced together in a manner similar to that of the common mud-dauber wasp of this section. The number of cells built by each wasp varies from 2 to 15.

Immediately on exit they begin to build fresh nests and many may be found complete in April. The young are fed on the small green larvæ found so abundantly on the leaves of the common Ar-

temesia; eight of these is the average number found in each cell. The egg is deposited after the cell is filled. The larvæ of this species, in common with many others, can devour more food than the parent wasp generally allows them; one of them that I experimented with had no difficulty in disposing of four small spiders immediately after consuming the maternal allowance.

The parasites affecting these are few in number and are limited to one species, viz., *Chrysis cærulans*, Fabr.

This wasp, I believe, possesses the distinction of having a smaller percentage of parasites than any other I have investigated. Of the hundreds of cells I have examined only five contained parasites.

This immunity is probably wholly due to the nests being completed mon hs earlier than the majority of parasites usually appear.

A. DAVIDSON, M. D.,
Clifton, Arizona.

Prof. F. W. Mally, of Hulen, Texas, has recently been elected, by the directors of the Agricultural and Mechanical College of Texas, State Entomologist and Professor of Entomology in the college.

Dr. A. Fenyes has started on a collecting trip to Mexico, Texas, New Mexico and Colorado, and will be gone five months.

Dr. William Barnes is collecting Lepidoptera in Southern Arizona.

Dr. Henry Skinner, Prof. A. J. Snyder and Mr. Philip Laurent are planning a collecting trip to the Rocky Mountains.

The following is of interest as an early reference to *Cicada septendecim*. The brood referred to seems to be that due in 1902.

E. FOSTER, New Orleans, La

"A respectable old gentleman, who has seen and observed the locust at the different periods of their appearance, as noted below, has favored the editor of the *Register* with the following memoranda:

"'The locust appeared—

"'In 1749, in the month of May.

"'In 1766, they came out of the ground from the 14th to the 17th of May.

"'In 178', they came out fron the 16th to the 19th of May.

"'In 1800, from the 19th to the 26th of May.

"'In 1817, they did not appear until the beginning of June. It is supposed the cold and wet weather retarded their progress.

"'They continue from four to six weeks, and are harmless, except to young and tender fruit trees or the twigs of older trees, wherein the female deposits her eggs, which in a few days vivify, and the twigs either break off or the young locust emerges and falls to the ground, and makes its way into the earth for another period of seventeen years.'"—*Niles' Weekly Register, July 12, 1817, XII, p. 310.*

Entomological Literature.

COMPILED BY P. P. CALVERT.

Under the above head it is intended to mention papers received at the Academy of Natural Sciences of Philadelphia pertaining to the Entomology of the Americas (North and South). Articles irrelevant to American entomology will not be noted. Contributions to the anatomy, physiology and embryology of insects, however, whether relating to American or exotic species, will be recorded. The numbers in HEAVY-FACED TYPE refer to the journals, as numbered in the following list, in which the papers are published; * denotes that the paper in question contains descriptions of new North American forms. Titles of all articles in foreign languages are translated into English; usually such articles are written in the same language as the title of the journal containing them, but when such articles are in other languages than English, French, German or Italian, this fact is indicated in brackets.

3. The American Naturalist, Boston, May, '99.—**4.** The Canadian Entomologist, London, Ont., May, '99.—**5.** Psyche, Cambridge, Mass, May, '99.—**9.** The Entomologist, London, May, '99.—**10.** Nature, London, '99.—**11.** The Annals and Magazine of Natural History, London, April, '99.—**14.** Proceedings of the Zoological Society of London, '98, pt. iv, April 1, '99.—**15.** Biologia Centrali-Americana, London, pt. cxlvi, Feb. '99.—**22.** Zoologischer Anzeiger, Leipsic, '99.—**35.** Annales, Société Entomologique de Belgique, Brussels, xliii, 3, March 30; 4, April 27, '99.—**38.** Wiener Entomologische Zeitung, xviii, 2-3, March 31, '99.—**40.** Societas Entomologica, Zürich-Hottingen, '99.—**46** Tijdschrift voor Entomologie, xli, 3-4, The Hague, March 28, '99.—**55.** Le Naturaliste, Paris, April 1, '99.—**59.** Sitzungsberichte der naturforschenden Freunde, Berlin.—**75.** Twenty-ninth Annual Report, Entomological Society of Ontario, Toronto, '99.—**84.** Insekten Börse, Leipsic, '99.—**86 a.** Annales, Société Entomologique de France, Paris, '97: 1, Dec., '97; 2-3, April, '98; 4, July, '98; all received May, '99.—**86 b.** Bulletin of the preceding, '97, received May, '99.—**107.** Revista do Museu Paulista, iii, 5, S. Paulo, Brazil, '98.—**108.** The Agricultural Journal. Published by the Department of Agriculture, Cape of Good Hope, Cape Town, '99.—**109.** Proceedings, Royal Society of Queensland, xiv, Brisbane, '99.—**110.** Bulletin, Société d'Histoire Naturelle de Colmar, nouvelle série, iv, '98.

The General Subject.—Bachmetjew, P. The critical point and the normal solidification point of insect juices, **40**, April 1.—Brainerd, D. The preparation of specimens for the exhibition of life-histories in the cabinet, figs., **75**—Brindley, H. H. On certain characters of reproduced appendages, particularly in the Blattidæ, 1 pl, **14**—Comstock, A. B. Hints on making collections of insects, Teacher's Leaflets, for use in the public schools, prepared by the College of Agriculture, Cornell University, Ithaca, N. Y., No. 7, June 1, '97—Evans, J. D. Notes on insects of the year, division No. 2, Bay of Quinte district, **75**.—Harrington, W. H. Notes on insects of the year, division No. 1, Ottawa district, figs, **75**.—Hubbard, H. G. Insect fauna of the giant cactus of Arizona: letters from the southwest, **5**—Kilman, A.

H. Notes on insects of the year, division No. 4, Niagara district, figs., **75.**—Künckel d'Herculais, J. Moulting in insects considered as a means of defense against vegetable or animal parasites; special roles of tracheal and intestinal moulting. Anales Sociedad Cientifica Argentina, Buenos Aires, March, '99.—Lemoine, V. On the application of the Rœntgen rays to the study of Articulates, **86 b.**—Lochhead, W. Entomology in schools, figs., **75.**—Lyman, H. H. The President's annual address, **75**; The freezing of insects, **75**.—Marchal, P. The Cecidomyids of cereals and their parasites, figs., 8 pls., **86 a**, 1.—Mayet, V. Note on the insects of the salt lands **86 b.**—Moffat, J. A. Notes on the season of 1898, **75.**—Norris, A. E. Cabinet pest deterrent, **4.**—de Peyerimhoff, P. Sexual variation in the Arthropods, **86 a**, 2-3.—Rennie, R. W. Notes on insects of the year, division No. 5, London district, figs., **75.**—Rousseau, E. On a process permitting the study of the internal anatomy of insects without dissection (preliminary communication), **35**, 4.—Schenkling, S. On myrmecophilous Arthropods, **84**, April 13; Springing beans, **84**, April 20.—Schwarz, E. A. Classified list of species observed by H. G. Hubbard on the giant cactus, **5**, supplement.—Webster, F. M. The collector and his relation to pure and applied entomology, **75**

Economic Entomology.—Anon.—Abstract of recent publications, Experiment Station Record, x, 8, U. S. Dep't of Agriculture, Washington, '99.—Anon. Dragonflies and chicken-raising, **84**, April 27.—Anon. The gypsy moth and economic entomology, **3.**—Austen, E. E. Mosquitoes and malaria, the manner in which mosquitoes intended for determination should be collected and preserved, **10**, April 20.—Benn, J. H., and others. Locust extermination, **108**, March 30.—Carew-Gibson, E. A., Matsimura, M. [The apple fruit miner, *Argyresthia conjugella*], **4.**—Chittenden, F. H. Some insects injurious to garden and orchard crops, figs., Bulletin No. 19, new series, U. S. Dep't Agriculture, Division of Entomology, Washington, '99.—Chobaut, A. On a *Xyleborus* parasite of an orchid in European greenhouses, **86 a**, 2-3.—Daguin. Edible insects in antiquity and in our own day, **55.**—Daniels, C. W. On transmission of proteosoma to birds by the mosquito: a report to the Malaria Committee of the Royal Society, Proceedings of the Royal Society, London, lxiv, 411, April 18, '99.—Dearness, J. The cotton boll worm in Canadian corn, **75.**—Duggar, B. M. Notes on the use of the fungus *Sporotrichum globuliferum* for the destruction of the chinch-bug (Blissus leucopterus) in the United States. Centralblatt für Bakteriologie, Jena, March 31, '99.—Edington. Locust extermination by the means of fungus, **108**, March 16.—Fletcher, J. The brown-tail moth; Injurious insects in 1898, figs., **75.**—Forbush, E. H. The gypsy moth, **75.**—Fuller, C. The common blue tick of Cape Colony and its relationship to the red water

ticks of North America and Australia, figs., **108**, March 16.—Fyles, T. W. The farmers' garden and its insect foes, figs., **75**.—Hunter, S. J. Alfalfa, Grasshoppers, Bees: their relationship, figs., Contributions from Entomological Laboratory, University of Kansas, No. 65. Lawrence, Jan '99.—Hutt, H. L. A few of the most troublesome insects of the past season (1898), figs., **75**—Illidge, R. Life-history, etc., of timber moths, **109**.—Lounsbury, C. P. Coddling moth again, **108**, March 2.—[Lugger O?] Butterflies and moths injurious to our fruit-producing plants, 237 figs. Bulletin 61, University of Minnesota Agric. Exper. Station, Division of Entomology. St. Anthony Park, Minn., Dec., '98.—Marchal, P. See the General Subject; also numerous short notes in **86 b**.—Mayer, C. A new remedy against phylloxera, **108**, March 2.—Pound, C. J. Notes on the cattle tick, **109**.—Roberts, L. Ticks and their destruction, **108**, March 16.—Shirley, J. Notes on bees and [as destroyers of] wax-scales, **109**.—Slingerland, M. V. Some new notions about some old insects, Reprint from Transactions, Massachusetts Horticultural Society, pt. 1, Boston, '99; Insect pests of 1898, Reprint from Proceedings, Forty-fourth Annual Meeting, Western New York Horticultural Society, Jan. 25, 26, '99.—Spalikowski, E. New researches on the accidents caused by the stings of bees, **55**.—Webster, F. M. Some economic features of international entomology, figs., **75**.—Weed, C. M. The forest tent caterpillar, figs., Bulletin 64, New Hampshire College Agricultural Experiment Station, Durham, N. H., April, '99; [Report of] Department of Entomology, figs, Tenth Annual Report of the same, Nov., '98.—Wells, H. H. and others. Locust fungus operations, **108**, March 2.

Arachnida.—Biro, L. Mimetic spiders, [in Magyar, brief summary in German], Rovartani Lapok, Budapest, April '99.—Cambridge, F. O. P. On new species of spiders from Trinidad, West Indies, 1 pl., **14**.—Cambridge, O. P. Arachnida-Araneidea, pp. 289-296*, **15**.—Gillette, C. P. Life-history of the sheep scab-mite, *Psoroptes communis*, **75**.—van Hasselt, A. W. M. The venom of spiders, **46**.—Moenkhaus, W. J. Contribution to knowledge of the Arachnida of San Paulo, 1 pl., **107**.—Pocock, R. I. A new stridulating Theraphosid spider from South America, **11**.—Trouessart, E. Note on the organ of fixation and of suction in the larva of *Trombidion*, figs., **86 b**.

Myriopoda.—Hennings. Tömösvary's organ of *Glomeris*, figs., **59**, '99, No. 3.—Verhoeff, C. On the European cave fauna, especially Diplopoda and Chilopoda, **22**, April 17.

Thysanura.—Bouvier, E. L. The genus *Maindronia*, new type of the family Lepismidæ, **86 b**.—Calandruccio, S. On the biology of *Japyx solifugus* Hal. and *Campodea staphylinus* Westw., preliminary note, Bulletino d. Societa Entomologica Italiana, xxx, 1-2, Florence, Oct. 31, '98.

Orthoptera.—Bolivar, I. Description of a new species of Orthoptera from Peru, **86 b.**—Brindley, H. H. See the General Subject.—Cuenot, L. The absorbent region in the intestine of *Blatta*, figs., Archives de Zoologie Experimentale et Generale, (3) vi, 5, Paris, '98.—Hunter, S. J. See Economic Entomology.—Petrunkewitsch, A. On the physiology of digestion in *Periplaneta orientalis* and *Blatta germanica*, figs., **22**, March 27.—de Saussure, H. and Pictet, A. Orthoptera, pp. 457-8*, **15**.—Scudder. S. H. The Stenopalmatinæ of the Pacific coast,* **4**—Stadelmann, H. A case of parthenogenesis in *Bacillus rossius*, **59**, '98.

Neuroptera.—Kellicott, D. S. The Odonata of Ohio (see the review, *post*)—Martin, R. Description of new Odonata' **86 a**, 4.—Tumpel, R. Die Geradflüger Mitteleuropas. Eisenach, Verlag von M. Wilckens Lieferung 2-4. pp. 25-96, pls. iv-xiv and 24 text figs., Odonata and Ephemerida

Hemiptera—Champion, G. C. Rhynchota-Heteroptera, vol. ii, pp. 193-216, pl. xii,* **15**.—Cockerell, T. D. A. On the habits and structure of the Coccid genus *Margarodes*,* **3**; Four new Diaspine Coccidæ,* **4**; *Aleurodicus mirabilis*, **5**; Some new Coccidæ collected at Campinas, Brazil, by F. Noack (three papers), **107**.—Ehrhorn, E. M. Three new Coccidæ,* **4**.—Fowler, W. W. Rhynchota-Homoptera, vol. ii, pp. 217-224, pl. xiv,* **15**.—Hempel, A. Notes on *Capulnia Jaboticabæ* Ihering, 1 pl., **107**.—King, G. B. Contributions to knowledge of Massachusetts Coccidæ,'i, **4**.—Mayet, V. Longevity of the cysts of *Margarodes*, **86 b**.—Reed, E. C. Synopsis of the Hemiptera of Chili (cont.) [in Spanish], Revista Chilena de Historia Natural, Valparaiso, Dec., '98.—Webster, F M., and Cockerell, T. D. A. The odor of the San José scale, *Aspidiotus perniciosus*, **75**.

Coleoptera.—Bedel, L., and François, P. On the stridulatory apparatus of *Siagona*, figs., **86 b**.—Belon, R. P. Description of a new Longicorn of the genus *Hebestola*, **86 b**.—Bordas, L. General considerations on the defensive glands of Coleoptera, Comptes Rendus, l'Academie des Sciences, Paris, April 17, '99.—Bourgeois. J. Catalogue of the Coleoptera of the chain of the Vosges and of the adjacent regions, **110**.—Champion, G. C. A list of the Cantharidæ supplementary to the "Munich" catalogue. **35**, 4.—Chobaut, A. New observations on the biological relations of the Anthicidæ with the vesicants, **86 b**.—Croissandeau, J. Monograph of the Scydmænidæ (cont.), 5 pls., **86 a**, 4.—Deegener, P. Structure and position of the mouth-parts of *Hydrophilus*, figs., **59**, '99, No. 3.—Dierkx, F. Structure and function of the defensive gland in the genus *Brachynus*, figs., **22**, April 17.—Escherich, K. To knowledge of the coleopterous genus *Zonabris* Harold, 1 pl., **38** and heft 4, April 30

'99 —Everts, J. E. Coleoptera Neerlandica. De schildvleugelige Insecten van Nederland en het aangrenzend Gebied. Deel I, 2de Gedeelte. 'sGravenhage Martinus Nijhoff 1899. pp 369-677, figs. 28-62 [in Dutch].—Formanek, R On the period of flight of some Coleoptera, **38**.—Gadeau de Kerville, H. Physiological experiments on *Dytiscus marginalis*, **86 b** - Gorham, H. S. Coleoptera, vol. vii., pp. 257-276, i-xii,* **15** —Harrington, W. H. A few Canadian Longicorns. **4**.—Hubbard, H. G. On *Thalassa montezumæ* Muls. (family Coccinellidæ), figs , Proceedings, Entomological Society of Washington, iv, 3, April 28, '99.—Lesne, P. Revision of the Coleoptera of the family Bostrychidæ, part ii, figs., **86 a**, 2-3; On a new species of Coleoptera of the family Bostrychidæ* (*Heterarthron subdepressus*, n. sp.), **86 b**.—Pic, M. On the carnivorous instincts of the Anthicidæ, **86 b** - Raffray, A. Revision of *Batrisus* and allied genera of Central and South America,* 1 pl , **86 a**, 4.—Schwarz, E. A. Description of new species of Coleoptera,* **5**, supplement. —Thery, A. Descriptions of new Buprestidæ and various remarks, **86 a**, 2-3

Diptera.—Austen, E. E. See Economic Entomology.—Dahl, F. The flea and its position in the system, **59**, '98 — Elliot, R. Two avian parasites; notes on their metamorphoses, figs., **75** —Kellogg, V. L. The mouth parts of the Nematocerous Diptera, iv, figs., **5** —Marchal, P. See the General Subject.—Weltner, W. The spawn of *Chironomus silvestris* F. **59**, '98 —van der Wulp, F. M. Diptera, vol. ii., pp 385-392, pl x,* **15**.

Lepidoptera.—André, E. Suicide of caterpillars. Bulletin, Société d'Histoire Naturelle de Maçon, No. 12, Dec. 1, '98.—Butler, A. G. *Chrysophanus thoe* of Gray—why is it not *C. hyllus* Cramer? **4**.—Dognin, P. New Heterocera from South America, **35**, 3.—Druce, H. Descriptions of some new species of Heterocera from Tropical America, **11**; Lepidoptera Heterocera, vol ii, pl. xcviii, **15**.—Dyar, H. G. A new Lithosian.* **5**.— Fettig. Variability in the order Lepidoptera à propos of some aberrations observed in Alsace, **110**.—Friedmann, F. On the formation of pigment in butterflies' wings, 1 pl. Archiv für mikroschopische Anatomie, liv, 1. Bonn, March 27, '99.—Frings, C. Preference of Lepidoptera for their own colors, **40**, April 15.— Fyles, T. W. Observations upon *Spilosoma congrua* Walk., **4**.—Gibson, A. Muskoka as a collecting ground, figs., **75**; On the Noctuidæ occurring in Toronto, figs., **75**.—Hampson, G. F. A revision of the moths of the subfamily Pyraustinæ and family Pyralidæ, pt. 1, figs., 2 pls.,* **14**.—Jones, E. D. Emergence of a butterfly, figs., Science Gossip, London, May, '99.— Lathy, P. L. Descriptions of new species of Syntomidæ in the collection of Mr. H. J. Adams, **9**.—[Lugger, O?] See Economic Entomology.—Mabille, P. Description of new Lep-

idoptera, **86 a**, 2-3.—McIntosh, W. The butterflies of New Brunswick, Bulletin, Natural History Society of New Brunswick, xvii, St John, N. B., '99.—Moffat, J. A. Random recollections in natural history, figs., **75**: A bit of history, **75**.—Moore, F. Lepidoptera Indica, part xxxvi. [Vol. iii, pp. 233-254, pls. 279-286, completing vol. iii.] London: Lovell, Reeve & Co., Ltd. 1899. Rec'd Apr. 24.—Oberthur, C. Descriptions of new Lepidoptera, figs., **86 b**.—Pictet, A. Aerial development of the wings of Lepidoptera, Archives des Sciences Physiques et Naturelles (4) vii, 3. Geneva, March 15, '99.—Snellen, P. C. T. Some remarks on Pyralidæ, with description of new species [in Dutch], 2 pls., **46**.—Standfuss, M. Summary of the experiments hitherto undertaken on Temperature and Hybridation, **84**, April 27.—Staudinger, O. Lepidoptera of the Hamburg Magellan Collecting Expedition. Ergebnisse der Hamburger Magalhaensischen Sammelreise, iv, '99.—Trimen, R. Seasónal dimorphism in Lepidoptera, **10**, April 13.—Winn, A. F. Notes on *Papilio brevicauda* Saunders, **75**.

Hymenoptera.—du Buysson, R. Study of the Chrysididæ of the Museum of Paris, 2 pls.,* **86 a**, 4.—Cameron, P. Hymenoptera, vol. i, pp. 467-474, vol. ii, pp. 401-404,* **15**.—Cockerell, T. D. A. Notes on American bees,* **9**.—Dyar, H. G. Larva of Xylelidæ, **4**.—Fertoń, C. Remarks on the habits of some species of *Prosopis* Fabr., **86 b**.—Fox, W. J. The North American Mutillidæ,* Proceedings, Academy of Natural Sciences of Philadelphia, 1899, April 17; Synopsis of the United States species of the Hymenopterous genus *Centris* Fabr., with description of a new species from Trinidad,* Id.—Hunter, S. J. See Economic Entomology.—Kiaer, H. Review of the Phytophagous Hymenoptera of Arctic Norway, 1 pl., Tromso Museums Aarhefte, xix, '98.—Kieffer, J. J. Cynipidæ, pp. 289-368, pls. xiii-xv, of Vol. VII, Species des Hyménoptères d'Europe et d'Algérie fondé par Edmond André et continué sous Ernest André, 65e Fascicule Paris. Vve Daboscletd, Jan. 1, 99.—Konow, F. W. On some new Chalastogastra,* **38**.—Marshall, T. A. A monograph of British Braconidæ, part viii, 1 pl., Transactions, Entomological Society of London, '99, pt i.—Morice, F. D. Pastor Konow's proposals as to the classification of Hymenoptera. Entomologists' Monthly Magazine, London, May, '99.—Wasmann, E. Supplement to "*Lasius fuliginosus* as predatory ant," **22**, April 17; The psychical activities of ants, 3 pls., Zoologica, heft 26, XI Bd, 1, Stuttgart, '99.

The Odonata of Ohio, by David S. Kellicott, Ph. D. Ohio State University. Contributions from the Department of Zoology and Entomology. No. 1. [Reprinted from the Special Papers of the Ohio Academy of Sciences, No. 2.] Columbus, Ohio. Published by the State University, March, 1899. 8vo. pp. viii, 116.

Portrait of the author. Three plates, containing 39 outline figures of parts of species of *Enallagma*, *Lestes*, *Diplax* and *Gomphus*.

This posthumous work of Prof. Kellicott is introduced by a prefatory note from his successor, Prof. Herbert Osborn, stating that it has been prepared from the original manuscript left by its author. Of this the first 61 pages are unchanged. The remainder has been completed, in accordance with Professor Kellicott's plan of treatment, by his associate, Mr. J. S. Hine, who also contributes a biographical notice and a bibliography of his deceased colleague. Practically, therefore, the present essay is due to Messrs. Kellicott and Hine The figures have been drawn by Mr. W. E. Kellicott.

We have previously expressed, in this journal, our high appreciation of Prof. Kellicott's work on the dragonflies of Ohio. We are, therefore, much indebted to Mr. Hine for placing before us the present more extended results of that study.

The subject matter proper begins with a brief introduction, in which the student is referred to other authors for a knowledge of the structure and metamorphoses of these insects. The 100 species found in Ohio are then described, with frequent keys to assist in their identification. Notes are frequently added upon the habits of flight and of oviposition. We incline to think that the localities in which the rarer species have been found have not always been sufficiently indicated. In the hurried perusal with which we have been obliged to content ourselves, it seems to us that the key to the species of *Lestes* (p. 15) is not very helpful; that some names, such as *Fonscolombia* and *Diplax*, have been continued which must be given up; and that an error has been made in the key to the genera of Libellulinæ (p. 92) in using the character "sectors of the arculus pedicillate" for *Diplax*[=*Sympetrum*] and *Leucorhinia*, for the reason that a very considerable amount of variation exists in this regard.

Very little change has been made in arrangement and classification. A considerable number of mistakes have been made by ourselves and others in treating of various species of the North American Odonata, and some of these errors appear in the present work. As the corrections have not yet been published, however, neither Prof. Kellicott nor Mr. Hine are responsible for the errors of their predecessors; but students will do well to be on their guard in identifying forms allied to *Enallagma pollutum*, *Gomphus lividus*, *fraternus* and *externus*.

In closing, we call attention to a remark in the Introduction, which is very cheering to the odonatologist. Treating of the question of the decrease or increase in the number of species, we read: "It is the opinion of the writer that some few forms once resident are no longer within our limits, but that others have taken up their homes here at the same time: in fact, it appears probable that the number has increased, rather than diminished, up to the present time."

PHILIP P. CALVERT.

DOINGS OF SOCIETIES.

Regular meeting of the Newark Entomological Society was held Sunday, April 9th, at Town Hall, President Bischoff presiding and fourteen members present.

The family *Notodontidæ* was exhibited and was fairly well represented by most of the members, Mr. Kearfott's exhibit included an interesting series of blown larva and pupæ.

Mr. Weidt exhibited a series of *Fevalia Jocosa* among which were two specimens, the primaries of which were yellow instead of green, and read the following article:

"On Sunday, April 2d, I took a trip to Forrest Hill near Newark, N. J., with my friend, Mr. Broadwell, to collect one of the earliest noctuids of the season, *Fevalia jocosa*. The weather was cold and before we reached our destination snow began to fall and a strong north wind was blowing which gave us small hopes of finding the insect, but after a search of two hours we had taken six specimens. The moth is taken on the bark of hemlock trees and all I have ever taken had just emerged, which made it an easy matter to capture them. It is necessary for the collector to carry a small box to put the specimens until they are fully developed before putting them in the poison bottle. I took a specimen March 8th, last year (an early spring) and took one as late as April 19th this year.

I have never seen the insect flying nor taken one at light. Prof. Smith remarked the tongue being very small, the moth is no feeder and does not fly much. He added that the insects mate early; usually in twenty-four hours and disappear soon after. Mr. Angleman mentioned that he had taken specimens with the primaries half yellow and half green. Mr. Kemp stated that a half day's collecting of Coleoptera by him, in the vicinity of Elizabeth, N. J., on March 30th, resulted in the capture of over 1,500 specimens, among which he recognized over 150 species. Of these species there were about 90 Carabids, 40 *Staphylinidæ*, 8 *Chrysomelidæ*, 17 weevils and the rest scattered throughout the order. They were mostly collected among dead leaves and debris, on the ground, under bushes."

A. J. Weidt, Sec.

At the April meeting of the Feldman Collecting Social, held at the residence of Mr. H. W. Wenzel, 1523 South Thirteenth street, eleven members and one visitor were present.

Mr. Wenzel stated that in the old edition of the Catalogue of New Jersey insects there were but nine species of *Scydmaenidæ* listed, whereas the number will be increased to seventeen in the forthcoming edition as far as his own collecting is concerned. He had taken the following species of that family in New Jersey from January 28th to April 15th: *Brachycepsis subpunctatus*, *Scydmænus perforatus*, *Scydmænus flavitarsus*, *S. fossiger*, *S. basalis*, *S. analis*, *S. brevicornis*, *S. clavipes*, *S. Lecontei*, *S. salinator*, *S. fatuus*, *S. fulvus*, *Cephensium corporosum*.

Mr. Laurent reported the abundance of pupæ of *Ceratomia catalpa* at Moores, Delaware county, Pa. The pupæ and many dead caterpillars lay just under the sod at the base of trees. The irregular appearance in abundance of the species was discussed by Messrs. Laurent, Skinner and Wenzel.

Dr. Skinner referred to a recently received letter, the writer dwelling on the probable large number of species new to science which existed in the private collections of many persons who were averse to sending them to specialists for study for fear that the specialists would desire to retain the specimen in payment for the trouble in identifying. The speaker held that specialists have the right to retain desirable specimens in such cases, and spoke of the ingratitude existing as a rule with those who expect to have scientific workers devote their time and experience in naming their specimens without recompense.

Discussed by Messrs. H. Wenzel and Bland, who concurred with Dr. Skinner.

Mr. H. Wenzel recorded the capture of *Erchomus lævus* in abundance at Anglesea, N. J., during the winter.

WILLIAM J. FOX, Secretary.

—o—

OBITUARY.

We announce with sorrow and regret the death of Edward Winslow Cross on April 23d, who resided in Manchester, N. H., and was born in that city July 21, 1875. He was an ardent student of entomology and a contributor to the pages of this journal. The Geometridæ claimed his especial attention, and he had a fine collection in the family. He was the youngest son of Judge David Cross, and a student at Harvard College Law School, and was graduated from Amherst College, class '97.

—o—

The February NEWS was mailed February 3d.
The March NEWS was mailed March 4th.
The April NEWS was mailed March 27th.
The May NEWS was mailed May 3d.

EXCHANGES

NOT EXCEEDING THREE LINES FREE TO SUBSCRIBERS.

☞ These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued.

Identification of Insects [Imagos] for Subscribers.

Specimens will be named under the following conditions: 1st, The number of species to be LIMITED TO TWENTY-FIVE for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Exotic species named only by special arrangement with the Editor, who should be consulted before specimens are sent. Send a two-cent stamp with all insects for return of names. PLEASE PUT DATE OF CAPTURE AND EXACT LOCALITY ON EACH SPECIMEN. Before sending insects for identification, read page 41, Vol. III. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

COLEOPTERA.—Wanted to purchase or exchange, all species of *Bostrychidæ* of the United States.—Rene Oberthur, Rennes, France.

LEPIDOPTERA. —Would like cocoons of *Eacles regalis* and *imperialis*—*Attacus columbia* and others (in exchange for cash).—J. E. Cottle, 1528 Jackson St., San Francisco.

COLEOPTERA.—I desire to exchange local beetles, named or unnamed, with collectors south, west or abroad. I will collect other orders for Coleoptera.—C. Abbott Davis, 1131 Elmwood Ave., Providence, R. I.

LEPIDOPTERA.—Live cocoons hybrid ♂ (*cecropia* x *ceanothia*) and *cecropia* ♀, hybrid ♂ (*ceanothi* x *cecropia*) and *cecropia*, ♀ *Saturnia pavonia*, pupæ *Thais cerysii* for exchange.—E. Heyer, Breitsstr. 44, Elberfeld, Germany.

LEPIDOPTERA for exchange. Write for list.—A. Troschel, 446 Larchmont Ave., Chicago, Ill.

COLEOPTERA desired.—Wanted the following numbers (Henshaw's list): 16b, 20, 23, 25g, 30, 34, 34a, 34b, 50, in exchange for 43 and 66.—A. Luetgens, 14 West 17th St., New York.

EUROPEAN COLEOPTERA given for Hymenoptera, from the South and Southwest, named or unnamed.—R. J. Weith, Elkhart, Indiana.

LEPIDOPTERA AND COLEOPTERA, from Germany, to exchange for anything not in my collection. Send lists.—William Kayser, Wapakoneto, Ohio.

LEPIDOPTERA.—For exchange: *Arg. diana, leto, chitone; Mel. acastus, gabbi maria; Cyst. amymone; Grapta faunus; Lim. weidemeyrii, lorquini; Het. bredowi; Coenon. haydeni; Hip. dionysius, ridingsii; Sat. texana; Chion. californica, chryxus; Th. crysalus, damon* var. *discoidalis behrii, sheridani; Lyc. fuliginosa; Chrys. xerxe; Auth. rosæ, genutia; Parnas, clodius; Pap. bairdi, mylotes.* Also many other species and rare Hesperidæ.—Henry Skinner, Academy Natural Sciences, 1900 Race street, Philadelphia.

BOOKS.—One complete set and first four volumes "Insect Life," bound and complete set Forbes's Illinois Reports, including miscellaneous essays, for exchange. Wanted, Riley's Missouri Reports, Fitch's New York Reports and other entomological literature. —W. G. Johnson, College Park, Md.

I WILL COLLECT AND EXCHANGE California insects for live tarantulas or trapdoor spiders.—C. E. Hutchinson, 2631 Michigan Ave., Los Angeles, Cal.

LEPIDOPTERA.—Wanted to purchase or exchange, all species of *Saturnia* and *Bombyx*, with their cocoons.—D. Levrat, 7 Rue St., Polycarpe, Lyons, France.

WANT BY EXCHANGE or will pay cash for Volumes 1, 2, 3 and 4, Buffalo Society of Natural Sciences. Also Proceedings American Philosophical Society of Philadelphia for 1873.—John Akhurst, 78 Ashland Place, Brooklyn, New York.

WANTED.—Scydmænidæ and Pselaphidæ, named or unnamed. Will give good exchange in Coleoptera or will collect other orders.—R. J. Crew, 225 Wilton Ave., Toronto, Canada.

LEPIDOPTERA.—Will purchase or exchange native and foreign Lepidoptera.—H. K. Burrison, West Newton, Mass.

ODONATA.—I have fine specimens of *Gomphus graslinelus*, ♂ ♀, which I wish to exchange for Odonata or Lepidoptera.—James Tough, 164 Ogden Ave., Chicago, Ill.

LEPIDOPTERA and Coleoptera from Germany for exchange for anything not in my collection.—Send list to William Kayser, Wapakoneta, O.

COLEOPTERA.—Carabidæ and Cicindellidæ of North America wanted in exchange for Carabidæ from Western Pennsylvania.—John Bright, 127 Roup St., Pittsburg, Pa.

LIVE PUPÆ AND COCOONS, FERTILE EGGS, wanted in exchange for European and exotic butterflies, Coleoptera, Hymenoptera, Hemiptera.—A. Voelschow, Schwerin, Meckbg, Germany.

WANTED.—HOMOPTERA from the South and West. Will give New Hampshire Lepidoptera in exchange.—Charles F. Goodhue, Webster, Mer. County, N. H.

WANTED.—To exchange Coleoptera of Northern Texas for those of other portions of the United States. I will collect during this season, for exchange, specimens in all orders represented here.—E. C. Lewis, Forney, Texas.

COLEOPTERA.—I will give 400 species and 1,200 specimens of European Coleoptera in exchange for 50 specimensof *Cychrus*, any species except *Lecontei*.—E. C. Ehrmann, 2314 Sarah Street, Pittsburg, Pa.

COLEOPTERA.—Desire to exchange with collectors of North American Coleoptera. Have good series authentically determined.—H.G. Griffith, M. D., Manayunk, Philadelphia.

HYMENOPTERA.—Wanted, specimens of the common Saw-fly, *Cimbex americana* from any locality. Will give hints as to easy capture, etc., to anyone interested. Named insects of any order given in exchange.- Charles Brues, 320 Hampden Court, Chicago, Ill.

A FAIR PRICE will be given for specimens of *Thecla lxta* and *Thecla M. album*. Apply to Entomological News.

WANTED.—Micro lepidoptera of the United States, especially *Tineina*. Living larvæ, especially leaf miners and case bearers desired. Will pay cash or give Coleoptera or Lepidoptera in exchange.—W. G. Dietz, M. D., 21 N. Vine St., Hazelton, Pa.

LEPIDOPTERA.—Diurnals, which are as yet not represented, desired from all countries. California and Mexican species given in exchange. Send lists.—E. K. Harvey, 1806 West Eleventh St., Los Angeles, Cal.

I AM willing to collect any order that is required this season to be found in Colorado. Correspondence solicited.—Ernest J. Oslar, 1853 Marion St., Denver, Colorado.

WANTED.—No. 3, of Vol. 6, Insect Life. Exchange or purchase.—J. G. Jack, Jamaica Plain, Mass.

WANTED, in large numbers.—*Luna*, *Io*, *promethia*, *cynthia*, *polyphemus*, *imperialis*, *regalis*, *ajax*, *cresphontes* and other chrysalids. Offer *columbia*, *ceanothi*, *gloveri*, *Pap. brevicauda* and *Sphinx modesta*.—Carl Braun, Bangor, Maine.

LEPIDOPTERA.—Exchange and correspondence desired; beginners invited. Especially wish *Lycaenidæ* and *Geometridæ* from all parts of North America, desiring varieties and intergrades; returns in exchange or cash.- John L. Healy, 4139 Bosworth Ave., Chicago, Ill.

LEPIDOPTERA.—I have New England species, also diurnals from South America, to exchange for Lepidoptera from all parts of the United States and Canada.—Send list to H. H. Newcomb, 178 Tremont St., Boston, Mass.

COLEOPTERA.—I offer unnamed Coleoptera of this locality for named or unnamed species of Coleoptera, Diptera and Hymenoptera of the United States. Correspondence solicited.—G. Chagnon, Box 186, Montreal, Canada.

BOOKS.—I will exchange Vols. 1 to 5 of Entomological News for Comstock's Manual or Holland's Butterfly Book. Will also exchange Vol. 1 Entomologica Americana and Vols. 8 to 29, Can. Entomologist, for standard works on birds.—H. W. Nash, Pueblo, Colorado.

LEPIDOPTERA.—I will take in exchange for exotic and native butterflies live pupæ and cocoons of *ajax*, zolicaon, *cresphontes*, *astylus*, modesta, *opthalmicus*, *raucouvcrensis*, *kalmiæ*, *chersis*, *regalis*, *ceanothi*, columbia, gloveri and others.—Charles F. Tenim, 48 Ralph St, Brooklyn, New York.

LEPIDOPTERA.—Specimens of *Thecla strigosa* wanted,—Dr. Henry Skinner, 1900 Race St., Philadelphia.

LEPIDOPTERA.—Wanted in papers, American species of *Catocola*, *Arctidæ*, *Sphingidæ* and *Rhopolocera* in exchange for European Lepidoptera. Will collect Coleoptera.—E. M. Dadd, 3 Colina Villas, Green Lanes, Wood Green, London, England, Great Britain.

New Publications.

COLEOPTERA—Revision of the species of *Apion* of American north of Mexico, by H. C. Fall (Trans. Am. Ent. Soc. 1898) 4 plates $1.00

LEPIDOPTERA—Synonymical Catalogue of N. Am. *Rhopalocera*, by Henry Skinner, M. D., 1898 . . . . . 1.00

HYMENOPTERA—The species of *Psen* inhabiting America, north of Mex., by Wm. J. Fox, (Trans. Am. Ent. Soc. 1898) .20

——— Monograph of the species of *Aphilanthops* inhabiting Boreal America, by S. N. Dunning (Trans. Am. Ent. Soc., 1898, ...10

——— On some Panurgine and other Bees, by T. D. A. Cockerell (Trans Am. Ent. Soc. 1898) 15

ODONATA—Burmeister's Types of Odonata, by P. P. Calvert, (Trans. Am. Ent Soc 1898,) 1 plate 75

LIST OF LEPIDOPTERA of Boreal America, by Prof J. B. Smith, 1891. pp. 124 listing 6020 species 1.00

LIST OF COLEOPTERA of America North of Mexico, by Samuel Henshaw, 1885 . . . . . 1.25

SUPPLEMENT to same, 1895 50

CRESSON, (E. T.)—Synopsis of the Families and Genera of the Hymenoptera of Am North of Mex. together with a catalogue of the described species and bibliography. Parts 1 and 2 complete, 1887 . . . . . 3.00

Sent on receipt of price. Price Lists Nos. 1, 2, 3 and 4 may be had on application to

E. T. CRESSON, Treasurer, P. O. Box 248, PHILADELPHIA, PA.

LEPIDOPTERA FOR SALE.

Lowest prices. Indian, S. American and Australian. Papilios daksha, tamalina, buddha, etc, Morphos-cipris, amathonte. Some lots of 50 species So. Am. for only $1 20 Send for list

H. K. BURRISON, West Newton, Mass.

A MANUAL FOR THE STUDY OF INSECTS. By John Henry Comstock, Professor of Entomology in Cornell University, and Leland Stanford, Jr., University, and Anna Botsford Comstock, member of the Society of American Wood Engravers. The book consists of 711 pages, and is illustrated by 797 figs in the text and six full-page plates, one of which is colored For sale by ENTOMOLOGICAL NEWS. Price, **$4.09**.

A TEXT-BOOK OF ENTOMOLOGY, including the anatomy, physiology, embryology and metamorphoses of insects for use in agricultural and technical schools and colleges, as well as by the working entomologist. by Alpheus S Packard, Professor of Zoology and Geology, Brown University, author of "Guide to Study of Insects," "Entomology for Beginners," etc, with over 400 illustrations 8vo. For sale by ENTOMOLOGICAL NEWS. Price, **$4.50**

WHEN WRITING PLEASE MENTION "ENTOMOLOGICAL NEWS."

JOHN AKHURST,

TAXIDERMIST AND DEALER IN ENTOMOLOGICAL SUPPLIES.

Improved Entomological Forceps.

Fine Carlsbader Insect Pins a specialty Price-list sent on application.
78 Ashland Place,
Brooklyn, N. Y.

FOR SALE.

Chalcolepidius tartarus, N. Sp. Described by H C. Fall of Cala. 50 cents per specimen. C. webbii, 25 cents.

CHAS. A. GRIFFITH, Green Lane, Manayunk, Phila., Pa.

The Butterfly Book. By W. J. HOLLAND. large 8vo., over 400 pp. of printed matter, 185 engravings in the text, and 48 exquisitely and accurately colored plates, containing more than 1000 figures, representing the types in the collections of W. H. Edwards, Theo. L. Mead. Dr H. Skinner and others Indispensable to all students of North American Entomology. $3.00 net. Sent upon receipt of price to any address

W. J. HOLLAND, Carnegie Museum, Pittsburg, Pa.

Coleoptera of North America For Sale.

Liberal discounts on large orders. Many rare and showy species on hand.

JOHN D. SHERMAN,
Box 1534, NEW YORK CITY.

Lepidoptera For Sale and Exchange.

Native and Exotic, expanded and in envelopes, by the piece or in lots of 100, mixed; various grades at various prices Morphos and Caligos in numbers. 59 species of Papilios, many rare. Send for lists.

ELLISON A. SMYTH, Jr.,

Va. Polytechnic Institute, **BLACKSBURG, VA.**

Patent Electric Collecting Lamp.

Gives astonishing results at "sugaring." Being a special manufacture, two weeks should be allowed to fill orders. This advertisement will not appear again this season. Send for circular. Sold only by

S. T. KEMP, 637 Jefferson Ave., Elizabeth, N. J.

WE buy and sell all orders of Insects, Cocoons and pupæ, American and Foreign. Offer life-histories of Lepidoptera, Fertilized ova, especially Catocala. Sphinges and Bombycidæ, Columbia and other rare cocoons. Give good exchange for desirable material. Patent pressed cork, best and cheapest ever offered, 9x12x¼, 10c per sheet. Tools, pins, presses, nets and cabinets. Send 5c for new catalogue. **Prof. CARL BRAUN, Naturalist, Bangor, Me.**

WHEN WRITING PLEASE MENTION "ENTOMOLOGICAL NEWS."